

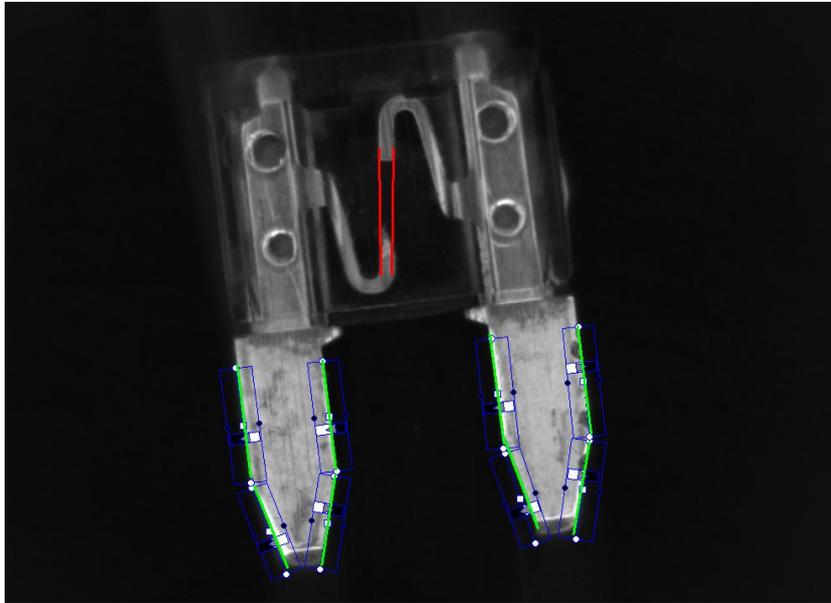
Application sample – Fuse Inspection



Introduction

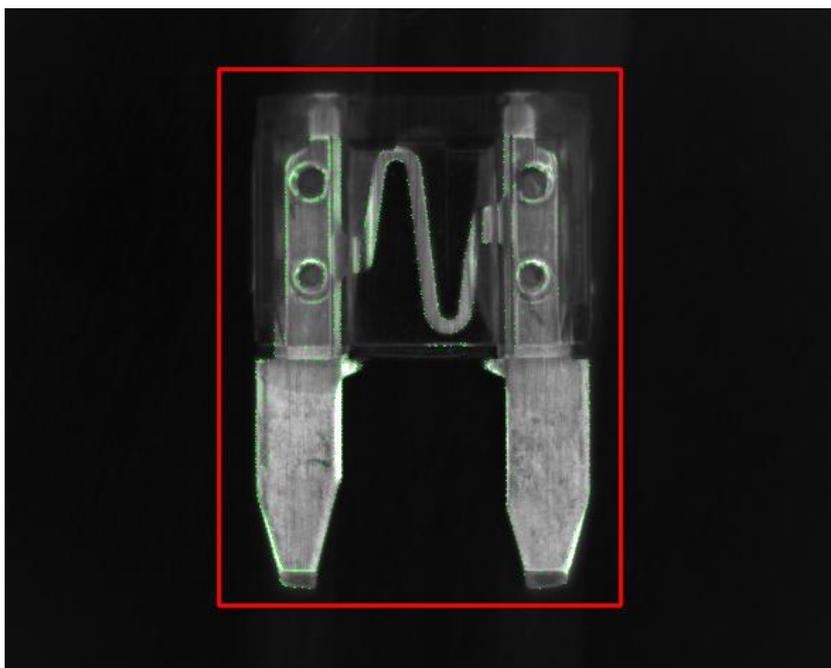
The objective of this sample project is to demonstrate how to inspect a given type fuse in order to determine whether it is blown or not. The inspection is based on images featuring a type of fuse commonly used in the automotive industry. This document details the necessary processing steps.

To run this sample project, the EasyFind and EasyGauge licenses are required.

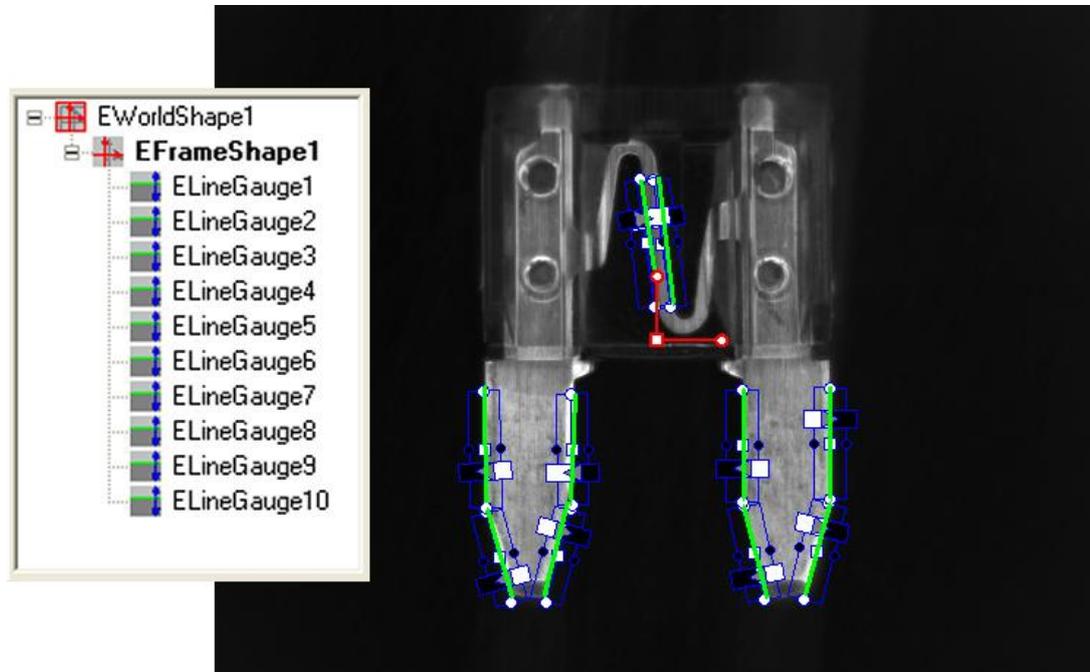


Initialization

The inspection mainly consists in finding the position of the fuse and positioning the measurement tools accordingly. This first step involves the EasyFind library. A model of the fuse needs to be learnt beforehand. Referring to the picture below, the red region of interest (ROI) defines the pattern. As the orientation of the fuse may vary, a rotation tolerance of $\pm 45^\circ$ has been set. These learning and settings are made through Open eVision Studio. The resulting EasyFind model file is loaded at the application start-up.



Ten ELineGauge tools are used to measure the fuse leads. As depicted in the tree view below, the ELineGauge tools are attached to an EFrameShape. The center of the EFrameShape corresponds to the center of the pattern defined previously. The outliers filtering mechanism is enabled for all ELineGauges. The gauges hierarchical arrangement and settings are made through Open eVision Studio. The corresponding EasyGauge model file is loaded at the application start-up.



Inspection

At first, it is necessary to verify that a fuse actually appears in the field of view. A geometrical pattern matching operation is performed to detect the presence or the absence of a fuse in the image. If a fuse has been found, its center position and its orientation are retrieved. Otherwise, the inspection is stopped.

Before triggering the measurement, the EFrameShape and its ELineGauge tools are accurately placed according to the position and the orientation of the fuse found at the first step

Two of the ELineGauge tools are used to determine whether the fuse is blown or not. The number of valid transitions along each ELineGauge is recorded. When this value is below a given threshold, the fuse is considered as blown.

